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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,219	02/27/2004	Shabbir Ahmed	051583-0293	9106
23524 7590 04/09/2008 FOLEY & LARDNER LLP 150 EAST GILMAN STREET P.O. BOX 1497 MADISON, WI 53701-1497				
EXAMINER				
LANGEL, WAYNE A				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
04/09/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/789,219

**Applicant(s)**

AHMED ET AL.

**Examiner**

Wayne Langel

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)  
Paper No(s)/Mail Date 2-27-04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-17 and 21 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Clawson et al '425. No distinction is seen between the apparatus disclosed by Clawson et al '425, and that recited in claims 11-17 and 21. Clawson et al '425 disclose a fuel processor comprising inner and outer reforming zones having a common sidewall with inlets for steam, oxygen and fuel. (See the Abstract, col. 2, lines 30-53 and col. 3, line 43 to col. 4, line 42.) Clawson et al '425 further teaches at col. 4, line 43 to col. 5, line 40 that the apparatus includes a cooling zone, a sulfur removal zone and a water gas-shift zone.

Claims 1-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clawson et al '425 as applied to claims 11-17 and 21 above, and further in view of Maruko. Maruko discloses an auto-oxidation and reforming apparatus for hydrogen production including means for feeding a gaseous mixture of a

hydrocarbon and water vapor into contact with a mass of a reforming catalyst to bring about a reforming reaction of the gaseous mixture to produce hydrogen, wherein a small amount of oxidizing catalyst is admixed with the reforming catalyst in such mass, and a small amount of oxygen is admixed with the gaseous mixture, whereby a portion of the hydrocarbon is exothermally oxidized to generate a quantity of heat required to reform the gaseous mixture of the hydrocarbon and water vapor. (See the Abstract and col. 2, line 36 to col. 4, line 61.) It would be obvious from Maruko to include a steam reforming catalyst and a partial oxidation catalyst in the inner zone of Clawson et al '425, since steam is included in the hydrocarbon-oxygen mixture, and one would be motivated from Maruko to include steam reforming and partial oxidation catalysts in such zone to enhance the partial oxidation and steam reforming reactions occurring in the inner zone of Clawson et al '425.

Claims 1-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clawson et al '425 as applied to claims 11-17 and 21 above, and further in view of Hwang et al. Hwang et al disclose an apparatus for generating a hydrogen-rich effluent from a hydrocarbon feed which includes means for introducing a preheated inlet stream comprising a hydrocarbon feed, water and air into an autothermal reactor containing a layered catalyst member and contacting the stream with the member at a temperature sufficient to initiate and sustain both catalytic partial oxidation and steam reforming; catalytically partially oxidizing at least part of the hydrocarbon feed to produce an effluent comprising hydrogen and carbon oxide; and steam reforming hydrocarbons remaining in the feed to produce a hydrogen-rich

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effluent, wherein the catalyst member comprises a monolith substrate containing on a surface thereof at least one layer of a steam reforming catalyst in contact with at least one layer of a catalytic partial oxidation catalyst. (See col. 2, line 41 to col. 4, line 5.) It would be obvious to include the catalyst of Hwang et al in the inner zone of Clawson et al '425, since Clawson et al '425 discloses at col. 5, lines 56-63 that steam is added to the hydrocarbon mixture, and Hwang et al suggest at col. 11, lines 8-24 that a mixture of hydrocarbon, water and air should be contacted with both a steam reforming catalyst and a partial oxidation catalyst to catalytically partially oxidize at least part of the hydrocarbon feed before steam reforming of the hydrocarbons. One of ordinary skill in the art would be motivated to do so, since it is clear that the process of Clawson et al '425 entails a partial oxidation process followed by steam reforming, and one would want to enhance the partial oxidation step of Clausen et al '425 by employing a catalyst to increase the rate of the reaction. Regarding claims 4, 5, 19 and 20, Hwang et al disclose at col. 6, lines 11-36 that the steam reforming catalyst may be one or more platinum metal components in combination with one or more rare earth oxides. It would be obvious from such disclosure of Hwang et al to employ a catalyst comprising platinum on gadolinium doped ceria as the catalyst in the inner zone of Clawson et al '425, since one would recognize that any known or suitable catalyst could be employed in such inner zone.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Langel whose telephone number is 571-272-

1353. The examiner can normally be reached on Monday through Friday, 8 am - 3:30 pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/  
Primary Examiner, Art Unit 1793

**Application Number****Application/Control No.**

10/789,219

**Examiner**

Wayne Langel

**Applicant(s)/Patent under  
Reexamination**

AHMED ET AL.

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1793